

E000P-971094-00

Date: 08/17/98

MODIFICATION REVIEW

For

BEAMLINE PERSONNEL SAFETY SYSTEM

**ARGONNE NATIONAL LABORATORY
ADVANCED PHOTON SOURCE
EXPERIMENTAL FACILITIES**

E000P-971094-00

Modification Review for Beamline Personnel Safety System

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Modification Review for Beamline Personnel Safety System**PSS Change Request****17 August 1998****1. PSS Change****Chain A:**

The existing experimental station door lock interface behavior will be modified.

Chain B:

Chain B is not affected as the code in the Chains operates independently.

2. Reasons for the PSS Change.

Operational experience has shown that it is desirable to modify the existing experimental station door lock interface behavior. There are two types of doors used with the experimental stations. There are doors that are operated manually and those that are operated pneumatically.

The pneumatically operated doors have open/close push buttons and are locked one second after closure by the PSS. They are unlocked immediately before opening by the PSS.

The manually operated doors have lock/unlock push buttons. Since the PSS system does not control the opening and closure of the manually operated doors the PSS does not perform lock/unlock functions for these doors based upon door operation. The PSS system does lock the manual doors upon successful completion of the search and secure procedure. It is currently possible to lock a manually operated door anytime the door is closed. It is also currently possible to unlock a manually operated door anytime there is no serious or major fault present.

Since the door locks, when active, prevent challenges to the door closed detection switches it is desirable to modify their behavior. While it is not allowable for an experimenter to be in an experimental station with the door closed it is possible for it to happen. Currently, another person outside the station could lock the station door without a search and secure requiring the experimenter to use the emergency egress to exit the station.

The behavior of the lock interface will therefore be modified to conform to the six items detailed in the Extent of the PSS Change paragraph.

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Extent of the PSS Change

1. Prevent operation of the safety critical device (shutter) until all doors in the area protected by the safety critical device are locked (manual and pneumatic). The locked status will be true after the lock command has been issued and will not depend upon feedback from the lock status sensor.
2. While a safety critical device (shutter) is open the lock status sensor will be monitored. If this feedback signal is lost a new EPICS warning (Lock-Fail) will be generated. This warning will be added to the PSS EPICS displays as the beam lines are revalidated.
3. While a safety critical device (shutter) is open the PSS will not allow the unlocking of experimental station manually operated doors. This will not circumvent the operation of the emergency egress located inside the experimental station.
4. A serious or major fault will prevent unlocking of all station doors. This is a current behavior. It will be noted that the emergency egress operates independent of the PSS and is still fully functional.
5. Manually operated doors will not be allowed to be locked until a successful search and secure procedure has been completed.
6. If a safety critical device (shutter) is closed it is allowable to unlock the manually operated doors by operating the unlock push button on the door control panel. However, prior to opening the safety critical device (shutter) the manually operated doors must be re-locked using lock push button on the door control panel. The door lock indicators are present on the door control panel.

This change will affect all Chain A Beamline code written or modified on or after 07 December 1998.

7. Method of Implementation

The changes will be applied using the existing Software Change Request mechanism as defined in the Software Configuration Management Procedures document E000P-921130 most current version for the Interlock Systems and Instrumentation Group.